

Cloned DNA Polymerases from *Thermotoga maritima* and Mutants Thereof

Abstract

5 The invention relates to a substantially pure thermostable DNA
polymerase from *Thermotoga* (*Tne* and *Tma*) and mutants thereof. The *Tne* DNA
polymerase has a molecular weight of about 100 kilodaltons and is more
thermostable than *Taq* DNA polymerase. The mutant DNA polymerase has at
10 least one mutation selected from the group consisting of (1) a first mutation that
substantially reduces or eliminates 3'→5' exonuclease activity of said DNA
polymerase; (2) a second mutation that substantially reduces or eliminates 5'→3'
exonuclease activity of said DNA polymerase; (3) a third mutation in the O helix
of said DNA polymerase resulting in said DNA polymerase becoming non-
discriminating against dideoxynucleotides. The present invention also relates to
15 the cloning and expression of the wild type or mutant DNA polymerases in
E. coli, to DNA molecules containing the cloned gene, and to host-cells which
express said genes. The DNA polymerases of the invention may be used in well-
known DNA sequencing and amplification reactions.